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PRACTICAL HINTS TO KINDERGARTNERS.

THE ESTABLISHMENT OF A KINDERGARTEN.

AN association of families, having children of the Kindergarten age (*i. e.* under seven years), should be the first step, after it has been definitely ascertained that such an enterprise is desirable and advisable.

One of Froebel's first conditions in regard to the establishment of a Kindergarten, and one on which in conversation he used to dwell long, and express himself with unmistakable decision, was, that it should not be made a matter of pecuniary speculation on the part of any individual. Families should combine for the purpose of having their own, or other people's children, trained by properly instructed persons, under the supervision of an experienced educator, who from love of his vocation, not from the desire of making money beyond a fair remuneration for his services, should devote his time, energies, and life to those intrusted to his care, loving them as his own children, and finding his highest reward in their rational development in mind and body. A director of one of Froebel's institutions must be a true disciple of his master;—he must be devoted to the cause, as Froebel himself was devoted to it,—nay, he must consent, if need be, to suffer for the good of mankind, as his great prototype showed himself willing to do during his whole earthly career.

The requisites for the establishment of a Kindergarten are :

1. A house, containing at least one large room, spacious enough to allow the children not only to engage in all their occupations, both sitting and standing, but also to practise their movement-plays, which, during inclement seasons, must be done in-doors.
2. Adjoining the large room, one or two smaller rooms for sundry purposes.

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3. A number of tables, according to the size of the school; each table affording a smooth surface ten feet long and four feet wide, resting on movable frames from eighteen to twenty-four inches high. The table should be divided into ten equal squares to accommodate as many pupils; and each square subdivided into small squares of one inch, to guide the children in many of their occupations. On either side of the tables should be settees with folding seats, or small chairs, ten to fifteen inches high. The tables and settees should not be fastened to the floor, as they will need to be removed at times to make room for occupations in which they are not used.

4. A piano-forte for gymnastic and musical exercises,—the latter being an important feature of the plan, since all the occupations are interspersed with, and many of them accompanied by, singing.

5. Various closets for keeping the apparatus and work of the children, a wardrobe, washstand, chairs, teacher's table, etc.

The house should be pleasantly located, removed from the bustle of a thoroughfare, and its rooms arranged with strict regard to hygienic principles. A garden should surround, or at least adjoin the building, for frequent out-door exercises, and for gardening purposes. A small plot should be assigned to each of the children, in which they may severally sow the seeds and cultivate the plants, receiving in due time the flowers or fruit, as the result of their industry and care.

When a Training School is connected with the Kindergarten, the children of the "Garten" are divided into groups of five or ten, each group being assisted in its occupations by one of the lady pupils attending the Training School. Should there be a greater number of such assistants than can be conveniently occupied in the Kindergarten, they may take turns with each other. In a Training School of this kind, under the charge of a competent director, ladies are enabled to acquire a thorough and practical knowledge of the system. They should bind themselves, however, to remain connected with the institution a specified time, and follow out the details of the method patiently, if they aim to fit themselves to conduct a Kindergarten with success.

In any establishment of more than twenty children, a nurse should be in constant attendance. It is her duty also to preserve order and cleanliness in the rooms, and to act as janitrix to the institution.

MEANS AND WAYS OF OCCUPATION IN THE KINDERGARTEN.

Before entering into a description of the various means of occupation in the Kindergarten, it will be proper to state that Friedrich Froebel, the inventor of this system of education, calls *all occupations* in the Kindergarten "*plays*," and the *materials* for occupation, "*gifts*." In these

systematically arranged "plays," Froebel started from the fundamental idea that all education should begin with a development of the desire for activity, innate in the child; and he was, as is universally acknowledged, eminently successful in this part of his important work. Each step in the course of training is a logical sequence of the preceding one, and the various means of occupation are developed one from another in a perfectly natural order, beginning with the simplest and concluding with the most difficult features in all the varieties of occupation. Together, they satisfy all the demands of the child's nature in respect both to mental and physical culture, and lay the surest foundation for subsequent education in school and in life.

The time of occupation in the Kindergarten is three or four hours on each week-day, usually from 9 to 12 or 1 o'clock; and the time allotted to each separate occupation, including the changes from one to another, is from twenty to thirty minutes. *Movement* plays, so called, in which the children imitate the flying of birds, swimming of fish, the motions of sowing, mowing, threshing, etc., in connection with light gymnastics and vocal exercises, alternate with the plays performed in a sitting posture. All occupations that can be engaged in out of doors, are carried on in the garden whenever the season and weather permit.

For the reason that the various occupations, as previously stated, are so intimately connected, growing as it were out of each other, they are introduced very gradually, so as to afford each child ample time to become sufficiently prepared for the next step,—without interfering, however, with the rapid progress of such as are of a more advanced age, or endowed with stronger or better developed faculties.

The following is a list of the *gifts*, or material and means of occupation in the Kindergarten, each of which will be specified and described separately hereafter. There are, altogether, twenty *gifts*, according to Froebel's general definition of the term, although the first six only are usually designated by this name. We choose to follow the classification and nomenclature of the inventor of the system.

LIST OF FROEBEL'S GIFTS.

- 1st Gift. 6 rubber balls, covered with a network of twine or worsted, of various colors.
- 2d " Sphere, cube, and cylinders, made of wood.
- 3d " Large cube, consisting of 8 small cubes.
- 4th " Large cube, consisting of 8 oblong parts.
- 5th " Large cube, consisting of 27 variously shaped parts.
- 6th " Large cube, consisting of doubly divided oblongs.

[The last 4 gifts serve for building purposes.]

- 7th Gift. Square and triangular tablets, for laying off figures.
- 8th " Staffs, for laying off figures.
- 9th " Whole and half rings, for laying off figures.
- 10th " Material for drawing.
- 11th " Material for perforating.
- 12th " Material for embroidering.
- 13th " Material for cutting of paper, and combining pieces.
- 14th " Material for braiding.
- 15th " Slats for interlacing.
- 16th " The slat with many links.
- 17th " Lacing with undivided paper strips.
- 18th " Material for paper-folding.
- 19th " Material for peas-work.
- 20th " Material for modelling.

FIRST GIFT.

The first gift, which consists of six rubber balls, overwrought with worsted for the purpose of representing the three fundamental and three mixed colors, is introduced in this manner.

The children are made to stand in one or two rows, with heads erect, and feet upon a given line, or on spots marked on the floor. The teacher then gives directions like the following :

"Lift up your *right* hands as high as you can raise them."

"Take them down."

"Lift up your *left* hands." "Down."

"Lift up *both* your hands." "Down."

"Stretch forward your *right* hands, that I may give each of you something that I have in my box."

The teacher then places in the hand of each child a ball, and asks :

"Who can tell me the name of what you have received?" Questions may follow about the *color, material, shape*, and other qualities of the ball, which will call forth the replies *blue, yellow, rubber, round, light, soft*, etc. The children are then required to repeat sentences pronounced by the teacher, as : "*The ball is round ;*" "*My ball is green ;*" "*All these balls are made of rubber,*" etc.

They are then required to return all except the *blue* balls,—those who give up theirs being allowed to select from the box a *blue* ball in exchange, so that in the end each child has a ball of that color. The teacher then says :

"Each of you has now a *blue, rubber* ball, which is *round, soft*, and *light*, and these balls will be your balls to play with. I will give you another ball to-morrow, and the next day another, and so on until you

have quite a number of balls; all of which will be of *rubber*, but no two of the same *color*."

The six differently colored balls are to be used, one on each day of the week, which assists the children in recollecting the names of the days, and the colors. After distributing the balls, the same questions may be asked as at the beginning, and the children taught to raise and drop their hands with the balls in them; and if there is time, they may make a few attempts to throw and catch the balls. This is enough for the first lesson, and it will be sure to awaken enthusiasm and delight in the children.

The object of the first occupation is to teach the children to distinguish between the *right* hand and the *left*, and to name the various colors. It may serve also to develop their vocal organs, and to instruct them in the rules of politeness. How the latter may be accomplished, even with such simple occupation as playing with balls, may be seen from the following. In presenting the balls, pains should be taken to make each child extend the *right* hand, and do it gracefully. The teacher, in putting the ball into the little hand outstretched to receive it, says:

"Charles, I place this red (green, yellow) ball into your right hand." The child is taught to reply:

"I thank you, sir."

After the play is over, and the balls are to be replaced, each one says in returning his ball:

"I place this red (green, yellow) ball with my right hand into the box."

When the children have acquired some knowledge of the different colors, they may be asked at the commencement:

"Which ball would you like to play with this morning?—the green, red, or blue one?" The child will reply:

"With the *blue* one, if you please," or one of such other color as may be preferred.

It may appear rather monotonous to some, to have each child repeat the same phrase, but it is only by constant repetition and patient drill that anything can be learned accurately, and it is certainly important that these youthful minds in their formative state should be taught at once the beauty of order and the necessity of rules. So the left hand should never be employed when the right hand is required, and all mistakes should be carefully noticed and corrected by the teacher. One important feature of this system is the inculcation of habits of precision.

The children's knowledge of color may be improved by asking them what other things are similar to the different balls in respect to color. After naming several objects, they may be made to repeat sentences like the following:

"My ball is green, like a leaf." "My ball is yellow, like a lemon."
"And mine is red, like blood," etc.

Whatever is pronounced in these conversational lessons should be articulated very distinctly and accurately, so as to develop the organs of speech, and to correct any defect of utterance, whether constitutional or the result of neglect. Opportunities for phonetic and elocutionary practice are here afforded. Let no one consider the infant period as too early for such exercises. If children learn to speak well before they learn to read, they seldom need much special instruction in the art of reading with expression.

For a second play with the balls, the class forms a circle after the children have received the balls in the usual manner. They need to stand far enough apart so that each with arms extended can just touch his neighbor's hand. Standing in this position, and having the balls in their right hands, the children pass them into the left hands of their neighbors. In this way, each one gives and receives a ball at the same time, and the left hands should, therefore, be held in such a manner that the balls can be readily placed in them. The arms are then raised over the head, and the balls passed from the left into the right hand, and the arms again extended to the first position. This process is repeated until the balls make the complete circuit and return into the right hands of the original owners. The balls are then passed to the left in the same way, everything being done in an opposite direction. This exercise should be continued until it can be done rapidly, and at the same time gracefully.

Simple as this performance may appear to those who have not tried it, it is, nevertheless, not easily done by very young children without frequent mistakes and interruptions. It is better that the children should not turn their heads so as to watch their hands during the changes, but be guided solely by the sense of touch; and to accomplish this with more certainty, they may be required to close their eyes. It is advisable not to introduce this play or any of the following, until expertness is acquired in the first and simpler form.

In the third play, the children form in two rows fronting each other. Only the children of one row receive balls. These they toss to the opposite row, first one by one, then two by two, finally the whole row at once, always to the counting of the teacher—"one, two, *throw*."

Again, forming four rows, the children in the first row toss up and catch; then throw to the second row, then to the third, then to the fourth, accompanying the exercise with counting as before, or with *singing*, as soon as this can be done.

For a further variety, the balls are thrown upon the floor, and caught as they rebound, with the right hand or the left hand, or with the hand inverted, or they may be sent back several times before catching. Throw-

ing the balls against the wall, tossing them into the air, and many other exercises, may be introduced whenever the balls are used, and will always serve to interest the children. Care should be taken to have every movement performed in perfect order, and that every child takes part in all the exercises in turn.

At the close of every ball-play, the children occupy their original places marked on the floor, the balls are collected by one or two of the older pupils, and after this has been done, each child grasps the hand of its opposite, and bowing, says, "Good-morning;" when they march by twos, accompanied by music, once or twice through the hall, and then to their seats for other occupation.

OUR POPULAR SCHOOL BOOKS.

III.—ENGLISH GRAMMARS.

WE do not profess in these papers to examine every work, or even a tithe of the works on the particular subject under consideration. Our aim is, as our title implies, to discuss the comparative merits of those text-books that are more generally used in schools. Occasionally a valuable work, that may not be very widely known, may be examined with the rest, so that those who have not the means or the time carefully to compare different text-books, may have such facts placed before them as shall enable them to form something like a just estimate of the relative worth of these treatises. With this end in view, we have selected certain grammars designed for the more advanced classes of students. Our list,¹ we believe, includes the best English Grammars

¹ Gould Brown's Institutes of Eng. Gram.; pp. 343. New York: Wm. Wood & Co.

P. Bullions' Principles of Eng. Gram.; pp. 225. New York: Sheldon & Co.

S. W. Clark's Practical Gram.; pp. 309. New York: A. S. Barnes & Co.

W. C. Fowler's Eng. Lang. in its Elements, etc.; pp. 381. N. Y.: Harper & Brothers.

S. S. Greene's Gram. of the Eng. Lang.; pp. 323. Phila.: Cowperthwait & Co.

J. S. Hart's Gram. of the Eng. Lang.; pp. 199. Phila.: E. H. Butler & Co.

S. Kerl's Com. Sch. Gram.; pp. 350. New York: Ivison, Phinney, Blakeman & Co.

S. Kirkham's Eng. Gram.; pp. 228. New York: Collins & Brother.

J. Mulligan's Gram. Struc. of the Eng. Lang.; pp. 574. N. York: D. Appleton & Co.

W. H. Parker's Gram. of the Eng. Lang.; pp. 384. Phila.: Eldredge & Brother.

T. S. Pinneo's Analyt. Gram. of the Eng. Lang.; pp. 214. Cin.: Wilson, Hinkle & Co.

G. P. Quackenbos's Eng. Gram.; pp. 288. New York: D. Appleton & Co.

W. H. Wells' Gram. of the Eng. Lang.; pp. 220. New York: Ivison, Phinney, Blake-man & Co.

now before the American public. Our examination of each must necessarily be brief. But with brevity we mean to combine justice, and give as clear and correct an idea as we can of the character and comparative value of each as a grammar.

In range, these books vary not a little,—more, in fact, than any other class of text-books. Those that are confined most closely to the treatment of grammar, properly so called, are Bullions', Hart's, Mulligan's, and Quackenbos's. Of Clark's, Kirkham's, Parker's, Pinneo's, and Wells' books, at least one-fourth is irrelevant to the subject; nearly one-third of Brown's, Greene's, and Kerl's; and more than half of Fowler's. The last, for example, gives 31 pages to the historical, 27 to the phonetic, and 22 to the orthographical elements of the language; 42 to derivation, 32 to rhetoric, 24 to poetical numbers, and 13 to punctuation,—making altogether 191 pages! Besides this, even under the heads of etymology and syntax there is a great deal of superfluous matter, such as alternative definitions (pp. 84, 85, etc.), alternative classifications (pp. 85, 100, etc.), notes on Comparative Etymology (pp. 96, 108, etc.), exercises foreign to the subject (pp. 304, 305, etc.), and uncalled-for remarks without number (pp. 90, 91, 172-174, etc.), swelling the book to nearly or quite three times the size it ought to be to teach all the grammar it professes to teach. The same fault of impertinent or needless matter is found to a certain extent in nearly every English grammar, though not generally so largely as in this book. It is true, it does not necessarily follow that the best text-book is that which confines itself most closely to the subject in hand. On the contrary, it may be the very worst. Still, it is a matter of prime importance that a text-book be so prepared that the subject concerning which it treats be not continually set aside by the introduction of something foreign and irrelevant. What would be thought of an Arithmetic, for example, lumbered up with pages of matter belonging to algebra, geometry, trigonometry, and conic sections? Yet our English Grammars are, for the most part, compiled on this principle,—presenting a sort of *omnium gatherum* concerning the English language. The least objectionable, that we know of, on this score, are Mulligan's and Bullions'. Apart from the 47 pages given by the former to orthoepy, punctuation, and versification, and the 45 pages devoted by the latter to orthography, punctuation, the use of capitals, prosody, and composition,—subjects deserving of attention, but not properly belonging to a grammar,—these authors confine themselves strictly to their professed subject. It is due, however, to Mulligan to state that he regards his remarks on orthoepy as a digression, while he treats of the other two subjects in an appendix. Of all writers of grammars, he alone seems to have a true idea of the legitimate province of his work. Next to him, in our judgment, is Bullions, who has embodied his ideas, if they can be

called his, in a generally plain and practical manner. A similar remark may be made respecting Hart. He gives about 6 pages to orthography, 5 to derivation, and 31 to prosody. Otherwise the volume is strictly an English Grammar. The remaining authors depart more or less widely from their legitimate work.

But as each book has a system of its own, let us look at the fundamental idea on which it is based. This will give us the most correct conception of its character and value as a grammar.

If Goold Brown's conception of the province of grammar had not been so broad, his Institutes would probably have been, in the main, as near to what a grammar should be as we have reason to expect. His design was to make a treatise that should "embrace in a short compass a complete course of English Grammar, *disencumbered of everything not calculated to convey direct information on the subject.*" This idea he has strictly conformed to with reference to what he conceived to be grammar. His error lies principally in making English grammar embrace whatever is needful to the "art of speaking, *reading, and writing* the English language correctly." Hence, orthoepy, utterance, orthography, punctuation, and composition to a certain extent, necessarily belong to his system. The system of analysis which appears in the late editions is not Brown's; nor do we regard its introduction, and the consequent displacement of much of Brown's material in order to make room for it, any improvement on the original work, the homogeneity of which is more or less impaired thereby. But, passing by these points and looking at *Brown* in his Etymology and Syntax, which embrace, properly speaking, all the "grammar" of the work, we find he plays the part, not of a mere book-maker, nor of a theorist, but of an experienced, practical teacher. His arrangement and classifications are generally natural and systematic. He not only gives definitions and rules to be learned; but, what is of equal if not greater importance, he follows them with full and appropriate exercises from first to last, giving the learner something *to do*,—something to fix those definitions and rules, and to exercise his skill in putting into practice the principles he has learned. Throughout the volume it is apparent that the author's main idea is to make the learner do as much as possible, while the work done shall pertain legitimately to the professed object of the book as an English grammar. This, taken in connection with the author's methodical arrangement, we regard as the secret of the success of his work as a practical text-book.

Bullions' Grammar differs but little, in the general idea and plan, from Brown's. It is, however, much briefer. The author's aim is to teach, illustrate, and enforce the general principles of the science as concisely as is consistent with clearness and profit. In certain minor points, the work admits of improvement; but, as a whole, it is a very practical text-book.

We wish we could say as much of the other volumes ; but we cannot. Clark's, for instance, in point of practicalness as a grammar, is not to be compared for a moment with Brown's, or even with Bullions'. In the first place, the book begins at the wrong end—with analysis—and consequently works backwards, or as nearly so as it can, all the way through. The author evidently holds, with certain theorizers, that "if grammar is that which teaches the right construction of language, then we should commence its study with a construction, and not with the study of single words ;"—*Mass. Teach.*, 1864, p. 318 ;—the absurdity of which lies in making the end sought the starting point ! The attempt to acquire a knowledge of grammar thus, especially when "aided" as here by diagrams, is about as natural as it would be to attempt to learn to spell without a knowledge of the names and powers of the letters. Diagramming, like any other species of puzzle, may do as an amusement to while away a winter's evening. But, as a means of learning grammar, it is very much like putting together the parts of a dissected map as a means of learning geography. Success in the performance of the latter depends on an acquaintance with maps and a knowledge of their outlines, etc. ; and, when, the puzzle is put together, the one who has done the work knows no more about geography than before. Just so, success in diagramming is dependent upon a knowledge of grammatical principles ; and by diagramming one does not necessarily gain any grammatical knowledge. Hence we say that an attempt to teach grammar through analysis, and especially through diagrams, is beginning at the wrong end. The doctrine that this is the true mode of teaching grammar is a false one. It has already led to the false structure of too many text-books, having clogged them with matter which, neither pertaining to the subject nor aiding the learner in the acquisition of grammatical knowledge, may be far more advantageously taken up afterward. In the second place, Clark makes analysis, and analysis by means of diagrams, the leading feature, the one peculiarity which crops out almost everywhere, and makes one feel that, with the author, an ability to convert a sentence into a diagram is of higher importance than an ability to speak or to write grammatically. Indeed, the correction of false syntax, as a means of acquiring grammatical accuracy in speech and composition, is made a thing of comparatively minor importance. This fact, together with the misplacement of analysis, and the stress laid upon it in the way of diagramming, renders the work as a grammatical text-book far less practical than many others.

Fowler's aim seems to be to make as much as possible of the historical element. The consequence is, his work, properly speaking, is not an English grammar, but a treatise on historical and comparative etymology as applied to the English language in connection with an exposition of the grammatical principles of the language.

Greene does not commit Clark's blunder of introducing analysis prior to etymology, and as an aid to a knowledge of grammar. He, however, devotes to it the first 40 pages under the head of syntax. We think he would have done better had he left it wholly for his supplementary work, which treats of this subject in full. Besides this, the book has more parsing, and less correcting of faulty syntax, than is desirable and needed in a work of its size. The 23 pages on orthography and the 16 on punctuation may also be objected to as too few to be of practical value, and too numerous for a text-book on grammar. In addition to all this, there are a number of useless specifications, as on pp. 64, 69, 91, 92, 102, 103, etc. Such specifications, if correct and clearly expressed, may possibly do well enough to instruct foreigners; but, for English-speaking scholars, they can hardly be said to be worth the paper on which they are printed.

Hart's Grammar is free from most of the peculiarities that distinguish and deface many other grammars. It is characterized by its conservatism, and its general endeavor to avoid knotty questions. This, perhaps, makes the book less useful than it might otherwise have been; for, with all its good qualities, it lacks individuality and force. And yet, as a text-book, we should prefer it to at least two-thirds of the other books in the list we have given.

Kerl's book is a thing *sui generis*, whether we consider its method or its matter. Its chief peculiarity is its arrangement, which could scarcely be worse. It treats of etymology and syntax together, then subdivides the whole so as to separate subjects that ought to be united, and unites others that apparently have no connection. One obtains no just idea of the work from the synopsis. Part II., for example, treats professedly of "Words uncombined." One would naturally suppose, therefore, that it must treat of spelling, pronunciation, and etymology. But etymology, except as denoting a few general principles of "derivation," does not appear here. This is left for Part III., which professes to treat of "Words grammatically combined." Part V., of "Words improperly combined," is headed "Syntax." And yet very many of the improper combinations there given are not examples of faulty *syntax*, but faulty rhetoric or something else; while many that are given as improper are unexceptionable. Of the former we note such as "She is a poor widow woman;" "His two sisters were both of them well educated;" "I bought it of the bookseller, him who lives opposite." Of the latter class are such as, "A squirrel can climb a tree quicker than a boy;" "What kind of a man is he?"

Evidently, Kerl has labored to make this a superior text-book. But he has failed. There is an originality, a freshness about it, as there is about all his grammars, making it a suggestive and pleasant book to read; and in certain points, as in his treatment of the Subjunctive Mood,

for instance, Kerl is far in advance of the others. But, for all this, his book lacks the soul of a good text-book, viz., a supply of well-arranged and appropriate exercises, compelling the pupil at every step not merely to *see* something, but to *do* something,—not merely to perceive the truth of what he is taught, but to apply what he has learned and thereby fix it indelibly in mind for future use and guidance. The author loves to explain, but he does not require his readers to show that they understand him, or remember his instructions. To illustrate, turn to p. 71, which is properly the second page of his grammar. There we have the definition of a noun, followed very appropriately by illustrations. Then come the classes of nouns,—proper, common, etc., with definitions and illustrations; after which is given a list of twenty-two nouns, the pupil being required to say why each is a noun. He may say, parrot-like, "Because it is a noun;" but obviously the true though unuttered reason is, "Because it is given in the list; for it wouldn't be there if it wasn't a noun." If Kerl would like to know a more practical mode, indeed the true mode, of impressing the lesson referred to upon the learner's mind, let him turn to pp. 45 and 55 of Brown's Institutes, where the pupil is required to determine for himself what words are nouns as well as to what classes they belong. We give the above as a single example of Kerl's want of practicalness. But, had we room, we might fill pages with illustrations of a similar nature. This, we say, is the great defect of the book, for it continually shifts the work from the pupil to the author or the teacher, and leaves the former, for want of practice, grammatically feeble and inefficient. This, however, is not the only fault. The first 33 pages, which are but an abridgment of the first 55 pages of his "First Lessons," are of too vague and indefinite a character to be of any practical value. They contain comparatively little for the learner to memorize, and next to nothing for him to do in the way of exercises. If he does anything, it is by the pumping process of questioning, which throws the burden of the labor on him who does the pumping. This mode of attempting to give instruction is extremely unsatisfactory, and sensible teachers avoid it. To pronunciation, orthography, and derivation—subjects which properly belong to reading-books and spelling-books—are given 35 pages. Then, there is other irrelevant or useless matter; as, for example, § 404 and its subdivisions, and §§ 455, 456, 457. But we cannot stop to specify. Any careful reader may note for himself much that is of this character.

THOUGHT is the essential prerequisite of true culture. The man who thinks most is the most cultivated. It is the culture of originality, of depth, of character. A man should be measured, not by the number of dates he can give, but by the number of thoughts he can originate.

COSMICAL REACTIONS.

BY PROF. GUSTAVUS HINRICHS.

THE progressive spirit of modern science is just now making great conquests in a field which but a few years ago was considered totally inaccessible to exact science. Instead of forever remaining a plaything to the fancy of metaphysical dreamers, the investigation of the material and constitution of the distant worlds now constitutes a highly important and rapidly progressing branch of experimental research. Based upon the great discovery of *Bunsen* and *Kirchhoff*, cosmical chemistry has already, in less than a decade, obtained very formidable proportions. It cannot, therefore, be expected, in a short notice like this, to give a clear view of the results obtained in this new branch of chemistry; but it may be interesting to mention a few of the most recent discoveries in this field, because they not only instruct us concerning the composition of the distant worlds, but even prove that chemical reactions are going on in the remotest parts of the universe, identical with those which we produce at pleasure in the laboratory. As in antiquity, astrology and alchemy were unitedly cultivated by the precursors of science, so again in our own day the science of the stars and the science of matter meet after a separation of several centuries, having in the meanwhile, by the exploration of different fields, cast off the fancies and dreams of youth and acquired the critical spirit and certain knowledge of stern manhood. Astronomy and Chemistry—separated by a deep gulf, deemed impassable but a few years ago—are now united in the same work with the same means, and secure wonderful results. In view of these results, the idea of *Unity in Nature* has passed still farther away from the domain of speculative philosophy, and become almost in every respect a positive fact. We knew already, before the discoveries in cosmical chemistry, that the same physical agencies of gravitation, heat, light, electricity, and magnetism, pervade the whole material universe; cosmical chemistry has now, in addition to this, established the uniformity of matter in the universe—and, accordingly, perfect Unity is established.

The recent discoveries, indicating cosmo-chemical reactions, are briefly as follows:

Since the great eclipse of 1868, *Jansen* has proved that the luminous atmosphere of the sun is surrounded by an envelope of hydrogen gas—the lightest of the known elements. In the solar photosphere the presence of sodium and magnesium has long been recognized. Now the thickness of the shell of hydrogen at the sun's surface varies exceedingly, both from place to place and in time. At times immense cloud-like

protuberances of hydrogen appear at different spots on the sun,—protuberances which formerly could be observed only during a total eclipse of the sun, but the true nature of which was discovered by means of the spectroscope during the last great eclipse above-mentioned. Since then, both *Jansen*, now in India, and Father *Secchi*, in Rome, have continued their observation of these protuberances through the spectroscope, and have ascertained their relation to the hydrogen-envelope of the luminous sun.

Quite recently Father *Secchi* has discovered a most remarkable flickering up of the variable star marked R in the Twins (Gemini). In the spectrum of this star, *Secchi* found the lines peculiar to hydrogen very bright; the lines of the metals sodium and magnesium were also brilliant. But in a few days all this splendor passed away; and instead of shining as a star of almost the 6th magnitude, it is now only of about the 10th magnitude. In his letter to the French Academy, of March 20, 1869, Father *Secchi* says in conclusion: "We have, accordingly, here witnessed a combustion of hydrogen and perhaps magnesium and sodium; that is to say, precisely those elements of this solar atmosphere which are the lightest (have the smallest atomic weights). It is remarkable that the decrease of intensity was so sudden."

He also refers to the similar case observed by *Huggins* and *Miller*, in 1866, on the so-called new star in the Northern Crown (Corona Borealis).

Hence the *fact* is established, that stars at times evolve great quantities of hydrogen gas in a state of incandescence, so as to make even very faint stars appear, for a short time, with considerable brilliancy. The combustion of the light, very oxydable metals, like sodium and magnesium, appears to be associated with the sudden evolution of hydrogen on the stars. Even our own star, the sun, locally and on a smaller scale, exhibits the same phenomenon in its protuberances.

On the luminous globes of the heavens, chemical reactions are going on, reactions of an extent of which we cannot form any adequate conception. The presence of hydrogen being a fact, hydrogen compounds must exist in the lower layers. Many of these compounds we know to be spontaneously decomposed upon coming in contact with metallic magnesium or sodium. The sudden evolution of incandescent hydrogen accordingly must be ascribed to the action of some hydrogen compound, like water or muriatic acid, on the above-named metals.

The grand phenomenon of a star suddenly becoming very brilliant for a short time is, accordingly, the same in kind as the common lecture-experiment of throwing a piece of sodium on water. The glory of the stars thus appears to be due to precisely the same forces and substances which the chemist uses in his experiments.

TECHNICAL EDUCATION IN EUROPE.

V.—BAVARIA.

THE royal decree for the reorganization of the system of Technical Education in Bavaria, dated May, 1864, provides for the establishment of a system of public schools designed to prepare pupils for industrial, commercial, and agricultural pursuits, and for the higher technical professions; these schools to serve as preparatory schools for certain special institutions (*Fachschulen*), which are not included in the present school organization.

The system includes the following classes of schools :

I. Industrial Schools, each provided, in accordance with local circumstances and requirements, with special subdivisions for instruction in commerce, agriculture, and other industrial pursuits.

II. Technical Gymnasiums (*real Gymnasiums*).¹

III. Polytechnic Schools, with special divisions for Architecture, Mechanical Engineering, Technical Chemistry, Trade and Commerce.

Special Schools, for instruction in veterinary science, forestry, and the higher branches of agricultural science, were already established when the decree was issued.

Industrial Schools.—These institutions, though called Trade Schools, are not specially intended to promote particular industries. The usual course of instruction which they afford is essentially of a general character, their object being to teach the common elements of education, and at the same time, by means of theoretical instruction in the rudiments of certain branches of art and science, to cultivate the understanding and taste of the pupils, so as to give them greater aptitude for pursuing intelligently such particular trades as they may adopt. They appear to have been called Trade Schools rather from the fact that they were instituted with the view of giving to the children of trades-people and mechanics such an education as seemed best calculated to meet the requirements of their social position, than because it was intended that trades or handicrafts of any description should be taught in them. These schools are not in all cases Government schools, many being supported in part by provincial or municipal authorities. They are all day schools, and intended for boys only.

¹ The term "real" is used in Germany in connection with education to designate that which is essentially of a positive and practical character. The technical gymnasiums are styled "real" in order to distinguish them from the other gymnasiums, the education at which is chiefly classical.

Each trade-school is divided into three classes. The course of instruction and the number of hours a week to be devoted to each subject, are laid down in the decree, as follows :

COURSE I.

Religion.....	weekly	2 hours.
German language	"	5 "
Geography.....	"	2 "
History.....	"	2 "
Arithmetic.....	"	5 "
Natural history.....	"	4 "
Drawing.....	"	8 "
French language.....	"	2 "
Together.....		30 "

COURSE II.

Religion.....	weekly	2 hours.
German language	"	4 "
Geography.....	"	2 "
History.....	"	2 "
Algebra.....	"	2 "
Plane geometry.....	"	4 "
Natural philosophy.....	"	4 "
Drawing and embossing ..	"	8 "
French language.....	"	2 "
Together.....		30 "

COURSE III.

Religion.....	weekly	2 hours.
German language	"	3 "
History.....	"	2 "
Algebra.....	"	3 "
Solid geometry and plane trigonometry.....	"	2 "
Descriptive geometry.....	"	2 "
Chemistry.....	"	4 "
Popular mechanics.....	"	4 "
Drawing and embossing ..	"	6 "
French language.....	"	2 "
Together.....		30 "

In the commercial division, the distribution of lessons is as follows :

COURSE I.

a. In common with the pupils of the industrial school :

Religion.....	weekly	2 hours.
German language	"	5 "
Geography.....	"	2 "
History.....	"	2 "
Arithmetic.....	"	5 "

b. For the commercial scholars separately :

French language.....	"	5 "
Calligraphy.....	"	5 "
In all.....		30 "

COURSE II.

a. In common with the scholars of the industrial school :

Religion.....	weekly	2 hours.
German language	"	4 "
Geography.....	"	2 "
History.....	"	2 "
Natural philosophy.....	"	4 "

b. For the commercial scholars separately :

Commercial arithmetic....	"	5 "
The science of commerce..	"	6 "
French language.....	"	5 "
In all.....		30 "

COURSE III.

a. In common with the scholars of the industrial school :

Religion.....	weekly	2 hours.
German language	"	3 "
History.....	"	2 "
Chemistry.....	"	4 "

b. Separately :

Science of commerce.....	"	6 "
Commercial geography and history of commerce...	"	3 "
French language.....	"	5 "
English language.....	"	5 "
In all.....		30 "

In the agricultural division the subjects of study are as follows :

COURSE I.

a. In common with the industrial scholars :

Religion.....	weekly	2 hours.
German language	"	5 "
Geography.....	"	2 "
History.....	"	2 "
Arithmetic.....	"	5 "
Natural history.....	"	4 "

b. Separately :

Agricultural science.....	"	6 "
Drawing.....	"	4 "
Agricultural practice.....	"	— "
In all.....		30 "

COURSE II.			COURSE III.		
<i>a.</i> In common with the industrial scholars:			<i>a.</i> In common with the industrial scholars:		
Religion.....	weekly	2 hours.	Religion.....	weekly	2 hours.
German language	"	4 "	German language	"	3 "
Geography.....	"	2 "	History.....	"	2 "
History.....	"	2 "	Chemistry	"	4 "
Natural philosophy	"	4 "			
<i>b.</i> Separately:			<i>b.</i> Separately:		
Agricultural science.....	"	6 "	Agricultural science.....	"	8 "
Arithmetical exercises....	"	2 "	Geometry.....	"	3 "
Drawing.....	"	2 "	Drawing.....	"	2 "
Agricultural practice.....	"	—	Agricultural practice.....	"	—
In all.....	24	"	In all.....	24	"

In regard to religious instruction, these schools fall under the regulations provided for all the public schools of Bavaria.¹

The appointment of directors and teachers at the trades schools rests with the local Government authorities in the case of schools established and supported by the State or provincial funds, and with the magistracy when the school is founded by the commune or corporation. In the latter case the appointments must be confirmed by the local government authorities; but the teachers do not in any case become permanent Government employees, their appointment being only temporary.

In order to be qualified for the appointment of teacher, the candidate must pass an examination in the subject which he professes to be competent to teach, but this examination is not competitive. It is not an indispensable requirement for appointment as teacher to a trades school that the candidate should have gone through the regular course of study prescribed at any particular school or college.

According to the returns for 1863, the aggregate number of teachers employed at the twenty-nine trades schools was 343, the number at each school ranging from 6 to 23. The salaries of the teachers at these schools vary from 700 to 1,000 florins per annum.

The qualifications for admittance as a scholar to the first or lower class of the trades school are, that the candidate should have completed his twelfth year (the age at which the six years' attendance at the national schools ceases), and shall not have exceeded his fourteenth year; and he must prove by means of a test examination that he possesses a proper knowledge of religion, that he is able to read fluently and write from dictation, that he can indite a piece of plain composition without any

¹ A vote has lately been taken in a part of the kingdom of Bavaria, on the question whether sectarian schools shall be changed into unsectarian public schools. An interesting vote is reported from the town of Neustadt. The large Protestant population was unanimous in favor of unsectarian schools. The Roman Catholics voted 594 for, to one (the parish priest) against. The Jewish vote was also unanimous in favor of the change.

gross mistakes of spelling or phraseology, and that he is master of the four rules of simple arithmetic.

The annual charge for admittance for each scholar is fixed by the decree at not less than 5 florins; but it is provided that in cases of well authenticated want of means, this charge shall be dispensed with, and the scholar admitted free of all payment.

Besides the regular scholars who follow the whole course of study laid down for each class in the school, special scholars, known as "hospitants," who receive instruction only in some particular branch of education, may be admitted by special permission. The annual fee paid by them is half of that paid by the regular scholars.

The statistical returns for 1863 give the total number of scholars frequenting the 29 agricultural and trades schools during that year, at 3,539; the average number has not increased materially since that period.

Divided according to provinces, the number of the scholars and the religious confessions to which they belonged, were as follows:

	<i>Catholics.</i>	<i>Protestants.</i>	<i>Jews, etc.</i>	<i>Total.</i>
Upper Bavaria	449	57	7	513
Lower Bavaria	250	4	..	254
Palatinate	113	296	46	455
Upper Pfalz	185	56	2	243
Upper Franconia	137	256	40	433
Central Franconia	68	446	80	594
Lower Franconia	316	120	34	470
Swabia.....	339	205	33	577
Total.....	1,857	1,440	242	3,539

The largest number of teachers at any one trades school to which the foregoing returns refer, was 344 (at Munich), and the smallest number 45 (at Neuburg, in the province of Swabia).

According to the statistical returns already mentioned, the revenues of these schools amounted for the year ending September 30th, 1863, to a total of 255,264 florins, which was derived as follows:

	<i>Florins.</i>
From Government or from provincial funds ¹	175,449
From municipal funds.....	41,970
From payments made by the scholars.....	12,928
From endowments	7,846
From private subscriptions, and property belonging to the schools	17,071
Total.....	255,264

¹ In the return from which these details are taken, the sums contributed by Government and from provincial funds are not stated separately, but are both included under one head.

The subvention paid to each school from the Government and provincial funds varied from 1,000 to 14,379 florins; that from the municipal funds ranged from 50 florins to 4,060 florins.

The "fortbildungs-schulen," or "schools for further improvement in education," were called into existence by the decree already referred to, for the general reorganization of the system of technical education. The special object for which they were established was that of affording a means of education to apprentices or workmen who had not been able to attend the regular course of instruction at the trades schools, or of giving to youths who, after having attended those schools, had entered upon a trade or handicraft, the opportunity of further improving the education which they had received. With this view, the classes are held on Sundays and holidays, and also on the evenings of two working days in the week. These schools are for the most part accessory to, and established in the same building as the trades schools, but in some cases they form separate institutions. They consist of two divisions, namely, the elementary section, and the section for special trades or handicrafts. The elementary section is intended as a means for continuing and improving upon the course of instruction followed at the national schools; the special section, as an institution for instruction in matters connected with trade and commerce, and for applying the theoretical knowledge acquired to the practical exercise of a particular trade or handicraft, the character of such trades or handicrafts being regulated according to the requirements of the particular district in which the school may be established. In the elementary section, the subjects taught are the following:

Religion; German language (composition, commercial style, etc.); Arithmetic; Drawing.

In the special sections: Drawing, in its several branches; Embossing and modelling; Arithmetic, and its application to trade and commerce; Geometry; Natural history; Chemistry; Knowledge of the different articles and substances constituting the staples of trade and commerce; Mercantile book-keeping; Practical exercises in different trades and handicrafts.

These schools, in so far as they are established as independent institutions, and not as branches of the trades schools, are supported chiefly from the communal funds, or other local sources, and are under the direction of the magistracy or town authorities.

Instruction in the elementary branches of education is given, as a general rule, by the teachers at the trades schools; instruction in trades or handicrafts, by practical workmen engaged in those callings, who are specially employed by the school authorities for this purpose. The only qualification necessary for admittance as a scholar at these institutions is that of having attended the national school during six years, as required

by law. The instruction afforded at them is given, almost without an exception, free of charge. According to a statement which appeared in the semi-official journal of Munich, there were at the beginning of 1867 fourteen of these schools in Bavaria, either in connection with trades, or as independent institutions, and the number of scholars attending them was about 560.

The establishment of this description of Sunday and holiday school has been much appreciated by the working classes, and their number is being increased. The practical working of these schools, and the general effect of the education afforded by them is most satisfactory, the result being that the educational standard of laborers in Bavaria is in many respects higher than that of the corresponding class in some of the most enlightened States of Germany.

ETYMOLOGICAL REVERIES.

BY PROF. F. L. O. RIEHRIG.

AS their name indicates, the following papers are not intended to be in method strictly scientific: they are *reveries*.

Having been forced to dabble more or less in the languages of many peoples, in our wanderings over the world, a swarm of words buzz around every object. We shall divert ourselves with them,—make words our playthings, and lying back in our easy-chair, blow them into the air about us like so many soap-bubbles. Is it not in dreams, or in the abandon and spontaneity of play, that glimpses of hidden truth often come to us? Perhaps in these “Etymological Reveries,” we may make happy guesses that will point the way to fruitful research.

I. *Negation*.—Choosing for our present subject the forms of *Negation*, in various languages, let us begin with the language most commonly known among the educated.

In Latin, *not* is *non*, which by dropping the final mutable liquid *n*, is reduced to the syllable *no*, as in *nolo*, etc.; we also meet with *ne*, as a prohibitive particle, appearing likewise in *nemo*, *nefas*, *nequeo*, *nequam*, etc.; and likewise with *ni*, as in *nisi*, *nihil*, *nihilum* (by apocope for *ne hilum*). It appears reduced even to the mere letter *n* in *nullus* (the negation of *ullus*), *nunquam*, *nuspian*, *nusquam*.¹ It is also expressed by

¹ The same occurs, as the reader may recall, even in our own language, if we will but consider words like the following—viz., *ever* and *never*, *either* and *neither*, *ought* (= *ought*) and *nought*, *one* and *none*;—which negative forms were in the Chaucerian period written, moreover, so as to show at the first blush *ne* in combination with the affirmative forms; as, for example, *ne ever* = *n'ever* = *never*, etc.

nec (which, despite of the opinion current among Latin scholars, we cannot, for a multitude of reasons, view as identical with *neque*).

It is also met with under the form of *neg*, as in *nego*, *negatio*, and similar derivatives, and in *negligo*. The negation *nec* or *neg* is, doubtless, of the same origin as the radical syllable of the verb *nec-o*, to kill, and *nex* (for *nec-s*, *nec-is*), death. In the Egyptian symbolic writing, *negation* was expressed by two human arms spread out as if to hinder a person from passing on his way; thus indicating an obstruction, an obstacle, or, generally, the idea of counteraction, opposition, and—by extension of the same idea—injury and damage. Thus *neg-o*, *nec-o*, and *nec-eo*, which latter signifies to *injure*, to *hurt*, coincide in their fundamental meanings as well as in their external forms; for if we call to mind the interchangeableness of the guttural letters, and the indeterminate, fluctuating nature of the vowels, we shall see no *essential* difference between *neg*, *nec*, *nec*, they all being reducible to the consonantal framework or formula *n—c*.

This *n—c*, or, in other words, the *NEG* or *NEC* of the negation, the *NEX* of *nex* (*nec-s*) death, the *NOC* of *nec-eo*, to injure, to hurt, reappears in the Latin word *nox*, which means *night*: For, the word *nox* stands for *nocs* (with *c*) like *nex* for *necs*, etc.¹ And in the genitive and other cases of declension, and all the derivatives, we meet, indeed, not with *nox* (night), but with *noc-t*; as, for instance, *nocturn*, etc. Here *noc* (of *nec-o*) to injure, to hurt, and *noc* (of *nocs*, *noct*) night, are seen to coincide. But they coincide even as to their very forms with *x*, viz.: *nox*, night; *nox-a*, damage, hurt, injury; *nox-a*, punishment; *nox-ius*, guilty, which latter signification is authorized by Tacitus: “*Conjuracionis noxius*,” and by Livy: “*Multos noxios judicavit*.” We also meet in the Latin of different periods with *nox-itas*, *nox-ialis*, *nox-iosus*. And as many modern languages, even though they be greatly mixed and much altered, unconsciously, and by an unerring instinct, as it were, often tend to produce words which are related and connected in their *outward forms* quite as much as are the *ideas* for which they stand, the French words *nuit* (night) and *nui-re*, *il nui-t* (to injure, to hurt), might justly be referred to this head.

As to the relation between *nox* (night) and *nex* (death) (they being both reducible to *n-x*), we quote Horace: “*Omnes manet una nox*,” and, elsewhere, “*Jam te premet nox*.” So Virgil: “*In æternam clauduntur lumina noctem*,” where *nox* constantly means the same as *nex* (death), either violent or natural death. Touching all other coincidences of *night*,—with *death*, *damnation*, *wintry coldness*, *mental darkness*,—we

¹ Priscian tells us: “*X duplicem loco c et s, vel g et s, postea Græcis inventam assumpsimus, ut dux, ducis (pro ducs), rex regis (pro regs) pax pacis (pro pacs) paciscor, pacificus*,” etc.

refer, among others, to the following passages—viz. : *Nox* (night) means *Hell* in Virgil : “Ire per umbram *noctemque profundam* ;” and again : “*Descendere nocti*.” Hell and the God of Hell, Pluto, were, by the ancients, placed under the earth, where no sunbeams can penetrate to warm or light the deceased. The Latin expresses it by *nox*, implying the coldness superinduced by the temporary absence of the sun. “*Noctem hiememque ferens*.” The absence of an intellectual light, or mental darkness, folly, and ignorance, are also expressed by the Latin *nox*, as in Ovid : “*Tantaque nox animi est*.” *Nox* being the privation of light, and connected with the ideas of calamity and distress, has also been instinctively introduced with that meaning into language ; as we read in Cicero, for instance : “*Sic effusa reipublicæ nox esset*.” *Night* is, in language, frequently connected, as to its radicals, with those of *negation*, as we have already seen. Is not *night* really a negative manifestation of things around us? Not only in the Indo-European, but in other and quite heterogeneous languages, as the Shemitic, the Tartar-Finnish, etc., we meet with this coincidence. Thus, in Arabic, Hebrew, Chaldaic, etc., the negative (no, not) is expressed by *la* and *lo* ; while *night* is denoted by a word forming a double negation, as it were, by the repetition of the radical *l*, thus : *la-la*, *lai-la*, *lail*. In any case, *la*—(generally *l*)—is the *essential* part of the word *night* in the Shemitic tongues. And in a similar way the same *la*, *lo*, enters into the verb denoting the idea of *hiding*, *covering*, as in Hebrew *laat* and *lot*. This very coincidence of the *negation* with *night*, so far from being regarded as mere chance, is, on the contrary, and in an unquestionable manner, to be met with again in a very different class, that of the Central Asiatic or Tartar-Finnish languages. Thus, in Turco-Tartar, we find *tunkil*, *not*, *no*, and *tun*, *night*, and *tun*, *evil*. And here we may suitably mention the English word *night*, in the same way, the German *nacht* (night) and *nicht* (not) ; both being reducible to their common foundation or rudimental form *n-cht*. [That they stand in precisely this relation with each other, is clear from the double fact—1st. That the German *ch* corresponds to *gh* in many cases, as Ger. *licht*, Eng. *light* ; Ger. *sicht*, Eng. *sight*, etc. 2d. That the German often has *a* before *ch*, where the corresponding word in English takes *i* before the *gh* ; as, for instance : Ger. *macht*, Eng. *might*, etc., and thus, in the case under consideration, Ger. *nacht*, Eng. *night*.] As *night* is the absence of light, and accordingly, darkness, so we see the word dark, or black, likewise related to the radicals we treat of. *Black* is called in Latin *niger* (*nig-er*), which *nig* reappears precisely the same in the English word *nig-ht*, and is thus related to *neg* in *neg-ation*, etc. The English word *night*, the Latin *niger*, the German *nicht*, might be reduced to their simplest forms (agreeably to the common fact that gutturals are often lost), to *ni*, which we see in *ni-si*, *ni-hil*, etc., while the more especially ele-

mentary form of *ne*-(g)o, *ne*-(c)o, *ne*-c, is *ne*, which we find in *ne*-mo, *ne*-quam, etc., and that of *noc*-eo, *nox*, etc., is *no*, *non*, as is seen in *no*-lo; so that the *negation* is, as it were, the primitive and fundamental idea of *death* (*nec*s or *nex*, *neco*), *darkness* (*nig*-er), *night*, etc., which all grow out of it by means of the addition of gutturals.

But as *noc*-s and the Greek $\nu\kappa\varsigma$ (= $\nu\kappa\varsigma$), *night*, refer quite as well to the ideas of *hiding*, *enveloping*, *including*, as the above-mentioned *laal* and *lot* did in Hebrew, so the Latin word *nucs* (conveniently written *nux*, and meaning a *nut*) can be brought into the closest relation with it. While *nocs* (*nox*) means *night*, *nuc*-s (*nux*) refers, in its primitive sense, to the ideas of *enclosing*, accordingly *darkness*—a kernel involved and hidden, etc. We here merely advert to the words derived from *nux*—viz. : *nucleus*, and to *enucleate*, which means to *elucidate*—to render *lucid*, to bring to the daylight out of the darkness, to throw *light* on, etc.

Now, if it be asked how the ideas of *negation* and *evil* were or became primitively connected, we answer that the universal order alone is *Affirmation*, or that all which is in conformity with the Divine plan of creation is necessarily affirmative. Evil as a *striving against* the created order of things, became, as it were, an attempted *lessening* or *diminishing* of it, a *breaking*, an *infraction* of its laws, as we intuitively express it in language. And when we consider and investigate the words expressing *evil* in different tongues, what do we find? Let us again begin with the Latin. Here we see the idea of evil expressed by *mal*-us, *mal*-e; *us* and *e* being mere terminations, the only important part of the word is *mal*, just as it appears in French—*mal* (ill or evil). As vowels are not fixed, but in a continually fluctuating state, *m-l* is the real Romance formula for *evil*. This we have a right to suppose is connected with the series of ideas of *lessening*, *diminishing*, *small*, *little*, etc. And indeed, *m-l* reappears in the Slavonian languages in *mal*-o, small, little, in *mal*-tchik, a hammer or an instrument which reduces a thing to smaller parts. In the Germanic group we meet with *m-l* in *mal*-en, to grind, which likewise implies the idea of lessening, breaking the grain into *mel* or *me(h)l*, *meal* (flour). And this is so little a mere hypothesis that, in French, *mal* has even in some instances the meaning of (*s*)*mall*, little, as "*pas mal*," not little, not a few; a fact that every one acquainted with the colloquial French is well aware of; while, on the other hand, *bien* (well, good) means also, much, many; as, for instance: *bien des choses*, many things, *bien de l'argent*, much money, etc. Thus, as to *mal*,—smallness and evil do evidently here coincide. Something of the same nature we see in the Latin *parvus* (small), and by the so very frequent transposition of the letter *r*, *pravus* (wicked). And in Hebrew we see that $\tau\text{ז}\text{א}\text{ר}$ means, 1st, He is become *little*; and 2dly, *mean*, *contemptible*; also in Arabic, *SAGHIR* signifies, 1st, *small*; 2dly, *bad*, *abject*, *mean*. In the Tartar-Turkish of

Tobolsk, *KEM* means, 1st, *small*; 2dly, *bad*. As we were speaking particularly of night and darkness, the color black, etc., and the radicals *nig* in night, and *nig-er* (black), so we have here again to state that *mal* (bad, wicked) reappears (as to its radicals) in the Sanscrit *malīnas*, which means, 1st, *malignus*; 2dly, black, and is thus related to the Greek *melainos*, the genuine form of *melas*, black; which coincidence of wickedness and black is strongly marked, especially in the French word *noir*, as *cœur noir*, *noirceur*, etc. But even in *malīnas*, *mel-* (*as*, *-ainos*), etc., *mal*, small, little—that is, negation, want, deficiency—seems to have been the primitive and fundamental idea; wickedness or evil, referring constantly to a want or an incomplete or negative condition with regard to absolute affirmation. And when we now consider the opposite of evil—viz., good—we see it, in many instances, most intimately related to the idea of plenitude, fulness; and thus in French, *bien* expresses *well* and *much*, as has already been shown. And do we not also say in English a “*good deal*” for a “*great deal*,” or considerable? Goodness appearing thus, as it were, a *qualitative* greatness, just as greatness in size may be viewed as a *quantitative* goodness. And do we not speak of a *GREAT* man in a moral sense, which even became an epithet of many kings and rulers? Bad, evil, denoted as we have seen, a *want*, a deficiency, and was kindred to the *negation* and its expression in different languages. Accordingly, *good* being the opposite term and referring to plenitude or copiousness, implies *affirmation*, or its expression in language—viz., the *affirmative Particle*.

Thus we see in English *well* used for *yes*; in French *bon* and *bien*. There are also languages where there is no other word for *yes* but the word *good*; and others, where *good* is the most usual affirmative. Thus in Turko-Tartar *ot*, which signifies, 1st, fire, and 2dly, wood, fuel, denotes also *good*, and (with a different pronunciation but the same orthography) is used for *yes*. In Arabic *na'm* signifies, 1st, *good*, *kind*; 2dly, *yes*. In modern Greek, *yes* is expressed by the word *malista*, and sometimes by *kala*. In Latin, *yes* is *sane* (adverb of *sanus*); also *sane vero* (from *sanus*, expressive of healthy, valuable, good, and *verus*, true).—[Our word *verily* comes from *verus* (Latin), true, and is used as a strong affirmation. In colloquial English, we substitute, sometimes in the same way, *pretty* (referring to good and to beauty) for *very* (referring to truth), *pretty well*, for instance, being often almost an equivalent of *very well*; this word *very* expressing a high degree, or, what is the same, *qualitative* greatness, derived from *verus*, true.]

Besides the mutual relationship we have seen, of the ideas and terms expressive of *evil*, *damage*, *injury*, *death*, *hades*, *night*, and *negation*, we have still to add to the same series *north* and *left hand*. Thus we have in Hebrew *shemol*, and in Arabic *shimal*, expressing, 1st, *north*; and

2dly, *left hand*, which is an instance of the two being expressed by one and the same word. And the same coincidence exists in Irish, where *tuaidh* means *north* as well as *left hand*. The *north* is indeed the left, when the face is turned toward the east, as in the worship of oriental nations. In Latin, the *left* is expressed by the word *sinister*, which besides refers to *evil*. In Finnish, *kura* means *left*, and *kura-d* signifies *devil*. The coincidence of *left*, and consequently *north*, with *evil* may be accounted for by the fact, that the east being the starting point for the sun, going to the *left* is, as it were, going *wrong*,—"contra solis cursum fleclens."

On the other hand, we see there is a coincidence of *right hand* with *good*, and also with *south* (the very opposite of north). Thus in Hebrew *yamin* means, 1st, *right hand*; 2dly, *south*; in Arabic *yaman* means, 1st, *right hand*; 2dly, *prosperous, happy*. (*Yaman* or *jaman*, vulgarly *jemen*, is the happy Arabia.) Just so in Turco-Tartar, where *ong* means, 1st, *good, prosperous*; 2dly, *right hand*. In Hungarian, too, *jó* means *good*; *jobb*, better; and *jobbra*, the *right hand*.¹ The word expressing *right* is related to *good* in many other languages, as, for instance, in German, where *recht* means, 1st, *right*; 2dly, *good*; 3dly, *law*; 4thly, *just, fair*; as from it we also derive *richtig, gericht* (judgment), *gerechtigkeit* (justice), *richter* (judge), etc. This whole chain of meanings and most remarkable coincidences might perhaps be still farther extended and developed by drawing from many other quarters of philological science.

EASY EXPERIMENTS IN ELEMENTARY CHEMISTRY.

SECTION IX.—(Concluded.)—Phosphorus.

PHOSPHORUS bears a resemblance to sulphur, so far that the two have been classed together under the name of the *pyrogens* or fire-producers.

This element occurs in combination, in minerals, plants, and animals. It is prepared from bones. From the chemist we obtain it in the form of cylindrical sticks, half an inch in diameter, semi-transparent, slightly yellowish, and somewhat resembling wax, although at ordinary temperatures it is harder.

It is kept in water. If exposed to the open air it slowly oxidizes.

¹ In Greek, however, *aristera* (the better one) means the *left hand*, by an *antiphrasis*, just as the *Furies* were called *Eumenides*, and the Black Sea Pontus *Euxinus* (*eu-xeinós*).

When in the water, if exposed to the light, it becomes covered with a coating which has a yellowish red tint, and is quite opaque.

When phosphorus is being cut or otherwise handled, preparatory to experimenting with it, great caution is necessary, as when dry the slightest friction or even the heat of the hand may ignite it.

Phosphorus may be dissolved in ether or bi-sulphide of carbon.

Exp. 108. Put into a small flask half an ounce of ether, and a bit of phosphorus as large as a bean. Cork the flask and let it stand some days, shaking it occasionally. Pour a small quantity of the clear liquid on the hand, in a dark room, and rub the hands briskly. The ether evaporates and the phosphorus becomes luminous, by reason of oxidation from the air.

Exp. 109. Moisten a lump of sugar with the ether solution and throw it into hot water. The phosphorus burns with a little flash at the surface of the water.

Exp. 110. Cover a thin slice of phosphorus, on a bit of stick or pasteboard, with dry powdered charcoal. After a few minutes the phosphorus takes fire.

Experiments like the last, or *Exp.* 87, may be safely performed on the lecture-table with no other protection than a bit of shingle or pasteboard; neither of these is set on fire by the burning phosphorus.

Exp. 111. The different degrees of oxidation of phosphorus may be beautifully shown by employing a glass tube, from a quarter to a half inch in diameter, eight or ten inches long, and slightly bent near one end, though this last condition is not essential.

Put a few bits of phosphorus into the tube. If it be a bent tube, let them rest at the bend; if straight, the phosphorus should be only two or three inches from one end. Hold the tube, both ends at the same height, over the flame of the spirit-lamp, so that the heat shall be applied to the phosphorus.

As soon as it melts, raise the long end of the tube gradually, until, by reason of the current of air through the tube, the phosphorus bursts into flame. The white vapor that issues from the tube is phosphoric acid. Lower the upper end of the tube gradually; combustion is less vigorous, and phosphorous acid is deposited on the inside of the tube.

When the tube is nearly level the reddish yellow oxide of phosphorus is abundantly formed.

By alternately raising and lowering the long end of the tube, the different phases of the experiment may be repeated several times.

The best solvent for phosphorus is bi-sulphide of carbon, an extremely disagreeable, volatile liquid, which may be obtained of any chemist.

Slices of phosphorus added to this liquid are rapidly dissolved. One ounce of the bi-sulphide is sufficient.

Exp. 112. A bit of paper wet with the above-named solution, if left in the open air for a minute or two, burns with a bright flame.

An interesting phenomenon in connection with this experiment is, that the paper burns only so far as it is wet by the solution.

Most of the so-called "Greek Fire" preparations are composed of the above bi-sulphide solution, with the addition of some other inflammable liquid, whose office is to continue the combustion which the phosphorus begins.

Exp. 113. Set some water boiling in a pint flask, drop in a bit of phosphorus as large as a pea. It melts readily. By means of a bag and a small curved tube, force a stream of oxygen upon the melted phosphorus.

It burns with much fierceness and brilliancy.

Exp. 114. Phosphuretted hydrogen requires, for the single experiment that is performed with it, considerable care.

Use a two or three ounce retort,—one without a stopper is safest. Fill it full, neck and all, with a strong solution of hydrate of potash. Add a piece of phosphorus as large as a marble.

Prepare a saucer or other shallow dish nearly filled with the potash solution, and set it so that when the retort is in position for the application of heat, the beak of the retort shall just dip below the surface of the liquid in the shallow basin.

Immerse the end of the neck of the retort without pouring out any of its contents. This is accomplished by covering the aperture with the finger until it is immersed.

Protect the bowl of the retort with a dish of sand and apply heat.

The gas is soon evolved, and after a time fills the bend and the entire neck. The heat must now be so regulated that a bubble at a time shall escape at the surface of the liquid in the basin.

A bright flash and a slight report accompany the bursting of each bubble; and, if the air is still, a beautiful ring of white vapor, which rises slowly to the ceiling.

In a darkened room the rings may be seen to be faintly luminous.

The following precaution had better be observed in "taking down" the apparatus at the close of the experiment.

Close the end of the neck of the retort with the finger, and taking it from the stand, immerse it entirely in the pneumatic trough; now inclining the neck upward, let the gas out a little at a time, so that it shall come through a slight depth of water.

Experiments 39, 78, and 87, may be profitably repeated with this section.

WHAT a glorious world this would be, if all its inhabitants could say, with Shakspeare's shepherd: "Sir, I am a laborer; I earn what I wear; I owe no man hate; envy no man's happiness; glad of other men's good; content with my farm."

OCTOBER, 1869.

OLD WINE IN NEW BOTTLES.

EVER and anon, as the world grows in age and varied experience, the wise saws of former times are discovered to be no better than delusive fallacies. The maxims of ancient experience fail under the vicissitudes of modern life. The very aphorisms of the copy-books,—the gems of wisdom that have served to guide untold generations in the ways of penmanship and virtuous conduct,—are not exempt from the innovations of these latter days. One by one the proverbs of the past are ruthlessly disproved, until we begin to despair of the permanence even of our most cherished beliefs. The last saw cast down from the place of honor is the one which says that great men never repeat themselves. That comforting saying is no longer to be depended on: the rule is broken; and the Veteran Educator has done it.

Yet, after one has become reconciled to the thought that great men *may* repeat, it is possible to forget the loss the copy-books have sustained, in consideration of the great gain that must accrue to the army of school superintendents from the brain-saving invention by which the venerable superintendent of our sister city is enabled to repeat himself from year to year so entertainingly and with so slight an outlay of mental effort. We say the good that must accrue, and we believe that it will accrue right speedily; for though the invention is yet comparatively unknown, and great inventions are always slow in achieving popular recognition, we are confident that this will not be long in acquiring a national reputation after these writings are published to the world. Our proverbially wide-awake school-officers will find it too much to their advantage not to neglect so signal a means of simplifying their labors; and we are sure that they will only regret with us the inventor's shrinking modesty which

has kept him so long from raising from its undeserved obscurity this precious offspring of his brain. Whether the invention has been christened or not, we are not informed; certainly no name for it has been published by the inventor. In view of our being the first to bring the subject prominently before the public, we will venture to suggest as an appropriate name, Professional Shuffle and Deal; or an Easy Way for Making School Reports—subject, of course, to the inventor's approval.

The invention consists of sundry packets of paper-slips, or cards, on which are written or printed (the latter is the better way) certain sentences expressing such ideas and sentiments as would be appropriate under the several heads of an official report. For example, one packet would contain all the ideas required under the head of *Music*; another, those applicable to *Evening Schools*, and so on.

When the time arrives for making a report, the cards of the several packets are separately shuffled, and then dealt out as in an ordinary game at cards. After dealing, the sentences are copied in order by a clerk or secretary, with such adaptation of phraseology as may be needed to suit the pre-determined style of the Report. The next year there is a new deal, and a new report, and so on from year to year. It is astonishing to see what a variety of reports may thus be made with a very few ideas, with no tax on the Superintendent's mentality, and no risk of the introduction of unauthorized or contradictory sentiments.

To appreciate the beauty of this invention one needs only to witness its application in the last half-dozen annual reports of the inventor,—the ingenious superintendent of Brooklyn,—to the State Department at Albany. It is positively exciting to follow an idea through the different phases and connections in which it appears in these reports in the course of four, or five years. Take, for instance, the sentence which notes the Americanizing influence of Evening Schools; or that which calls attention to the convenience of certain specified books as helps to teachers and pupils; or the one which portrays the harmonizing influence of music.

Sometimes, however, it happens that certain cards will run together for two or three successive years. In such cases there will be a surprising resemblance between whole paragraphs. This is also noticeable when but few remarks are made under a given head.

The following is an example of the running together of the cards :

Under "Evening Schools"—1868.

An institution which makes provision for those who have not had the advantages of an early education, and more mature training and culture, that offer instruction in the elements of an education, freely, without money or price, should command our respect, enlist our sympathy, and secure our hearty co-operation and liberal support. Such is the evening school. It affords instruction at an hour when labor ceases, and when the young are peculiarly exposed to temptation; it invites all classes, both male and female, desirous of instruction and improvement, to enter its doors and enjoy the privileges afforded, and thus secure to themselves a power which will enable them to engage in any work with intelligence and skill, and successfully perform their duty.

Under the head of "Music," we find a good illustration of the second case mentioned, and one in which the copyist has varied the style of expression with commendable skill:

"Music"—1868.

This department of instruction is too important to pass unnoticed. Its influence can hardly be estimated. While music does not teach us directly how to solve those intricate problems which daily arise, and in which the idea of profit and loss is the consideration, yet it does contribute to the culture of the heart and affections, adding to the pleasures and happiness of teachers and pupils. It tends to the formation of good habits, promotes order, aids in the discipline of the school, relieves the monotony of the round of lessons and recitations, awakens new life in the school-room, and excites a common sympathy of joy, gratitude, and love in the hearts of all.

Under "Evening Schools"—1869.

An institution that makes provision for all who have not had the advantages of early instruction, and more mature culture and training; that affords the means of instruction freely, without money or price; that supplies intellectual wants at an hour when labor ceases, and when the young are peculiarly exposed to temptation; that invites all classes, male and female, to enter its doors and enjoy its privileges, that they may secure to themselves a power by which they may be assisted in the discharge of the various duties, relations, and exigencies of life; should command our respect, enlist our sympathy, and secure our hearty co-operation and liberal support.

"Music"—1869.

There can be no doubt that music has power, and that its influence, where properly taught, is decidedly good. It contributes to the pleasure and happiness of the teachers and children, by exciting a common sympathy among them; it is an important instrumentality in forming good habits, and promoting good order; it imparts new life and cheerfulness, by relieving the classes of the monotony of lessons and recitations; it tends to improve the voice, by the culture of the vocal organs; and, better still, to refine the feelings, and inspire the heart with love and gratitude to the Giver of all Good in songs of praise, in unison with those that fill the courts of heaven!

When there is a larger number of cards in a pack, the several ideas seldom run so closely together for two successive years. Indeed they are generally so scattered in the shuffling, that any given idea turns up at different times in most unexpected places and connections. To realize

this interesting fact to the best advantage, it is necessary to compare the remarks made under a given head, for three or four different years, not by paragraphs, but as a whole ;—since an idea that falls in one paragraph one year, may turn up in another and quite different one the next year.

We regret that our space does not permit us to do justice to this remarkable invention by quoting more at length. We must content ourselves with adding a few of the edifying remarks which have appeared under the head of "Libraries."

1865.

Most of our schools are supplied with libraries, and the books are sought with interest, and read with profit. They are generally well used, and kept in a good state of preservation. Among the books of our libraries are many of great value in every department of literature, science, art, and industry. Here the teacher may find in the various "hand-books," dictionaries, encyclopædias, gazetteers, and other books of reference, such helps as may be necessary in order to understand any question that may arise in the class-room on a given subject, but which is not fully discussed in the text-book.

Here, too, the children find books adapted to their capacities, in the reading of which they may be entertained, interested, and improved. The general reader, also, may find in volumes of history, biography, travels, etc., means of entertainment and profit for a leisure hour, which may render home pleasant to himself and others. In this manner the library becomes an instrument of good, not simply on account of its intrinsic value, but by preoccupying the mind with that which interests, instructs, and ennobles; leading to knowledge and virtue, and thus preventing idleness, dissipation, and vicious indulgences. Books are serviceable only when we give to them thought, and inwardly digest what we read. The truths of a good book carefully read, strike their roots deep, not only into the understanding and memory, but the affections; and thus rooted, good fruit is produced.

1867.

The library is not a modern institution. In early times libraries consisted mostly of archives, which were deposited and preserved in the most sacred temples. In all ages the library has been a silent but powerful teacher. Its influence has been felt in forming character, and shaping the destinies of individuals and nations. In the library the many thousand voices of the past are heard in the present, and will continue to be heard in the future. If these silent teachers impart sound instruction alone, then shall we learn wisdom; if error, then untold evil must follow. A good book thoughtfully read strikes its roots deep, not only in the understanding and memory, but in the affections. Truth thus rooted would be very difficult to eradicate. . . .

In our libraries may be found books appropriate to the child and the adult; to the comparatively uneducated mind, and to the scholar. Here we find books in every department of literature, comprising works on science, art, government, history, biography, and morals. Here, too, we find books of reference, of great value to the teacher and the advanced pupils, such as dictionaries of commerce, of biography, cyclopædias of literature, gazetteers, encyclopædias, and various hand-books of reference, the value of which cannot be estimated. . . .

If, then, the library is a source of interest, instruction, and profit to the teachers, the pupils and the people; if in its reference books they find the aid they need in the prosecution of

their studies; if entertainment, instruction, and profit are found in the use of the books; if the feet of the young are by these means restrained from running into danger and wandering from the paths of knowledge and virtue, then we have here an influence for good, a powerful auxiliary in the education of our youth, and a source of interest and profit to the families into which these volumes are carried.

1868.

Books are silent teachers, but may become instruments of great good, or of unmeasured evil in the education of our youth. From the time of Faust to the present, the influence of books has been perhaps greater than any other simple instrumentality in forming the character and shaping the destinies of individuals and nations. A book may be taken in hand for a few minutes, the truth finds a lodgment in the mind, an interest is excited, the spirit of inquiry is aroused, investigation follows, mind is developed, and influences are set at work affecting the whole man, and controlling, in a great measure, his usefulness in the present, and his happiness here and in the world to come.

We enter the library, select a volume, and on opening it, find the page all aglow with

"Thoughts that breathe, and words that burn!"

We seem to hear the voices of the master minds of the past, in the "living present!" They teach, and will continue to teach in all coming time; if their teachings are wise, they who read and understand shall be wise also; but if not, then untold evils must follow in the train. How important that these fountains of knowledge be pure as well as free! . . .

The books of many of the libraries are well read, and are exerting a powerful influence upon the minds of a large number of persons, not connected with the schools, as well as upon the teachers and pupils themselves. The library books find their way into families, and the treasures of wisdom they contain are thus brought

within the reach of all who extend the hand to receive them. To the young, they furnish the means of rational entertainment and improvement, free from the seductive influences that beset their path as they go out into the world and mingle in society. This class of persons must have something with which to occupy their leisure moments. If not engaged in study or in reading, they may, as many have done, find their way into evil company and places of amusement or dissipation, where instruction and wisdom are not found, but where the snare of the fowler is set for their feet, and in which the unwary are often entrapped. How important that books be fountains of purity, and sources of wisdom and knowledge!

In our libraries are found, not simply books of popular reading, but a great variety of hand-books of reference; such as dictionaries of science, art, literature, commerce, encyclopædias, etc.; all of which are of great value to teachers and pupils, in reference to questions which may arise in the study of their lessons, or in the illustration of a given subject.

The libraries are also rich in books of history, biography, travels, the science of government, and mental and moral science.

1869.

It appears strange to me that any person of intelligence and observation, who has given any attention to the subject, can doubt its adaptability, influence, power, and importance, as an educational means in a system of public instruction. It is an institution of great antiquity, and of acknowledged power and utility among all civilized nations. A library, well filled with good books, may become a powerful instrumentality in developing and cultivating the mind, communicating knowledge, and forming correct habits of thought and action.

An institution which gathers the researches, discoveries, experience, and wisdom of the great, wise, and good from among the nations, and makes a free-will offering of all to

those who will turn aside and enjoy the same, confers an inestimable boon, the value of which cannot be estimated.

Here are to be found books in almost every department of literature, science, and art. Here are good selections of biography, history, travels, and voyages; of moral and intellectual philosophy; of political science and government; and of the standard authors of fiction. Here, too, are found many hand-books of reference, such as encyclopædias, dictionaries

of art, science, literature, commerce, gazetteers, etc.; all of which are of great importance to the teacher and pupils in the investigation of any particular subject, or in answering a difficult question that may arise in the class.

What an amount of material for intellectual and moral culture, well adapted to all classes; the old and the young, the scholar and the tyro, in learning! What an engine of power; and, if properly directed, what grand results!

It is hardly necessary to remark, in conclusion, that the general style and character of reports made in this way, is easily regulated from year to year. The superintendent has merely to decide whether the style shall be didactic, dogmatic, rhapsodical, or what not, and give the cue to the copyist, who easily runs the ideas, as they are dealt to him, into the given mould. In this way suspicious or unpleasant sameness is avoided, while the available permutations of the cards are largely multiplied. Leading Educators and others, who have frequent occasion to read or otherwise deliver addresses before teachers' meetings, will readily see how advantageously this invention may be used in the preparation of their discourses.

CHARLES DEXTER CLEVELAND.

PROFESSOR C. D. CLEVELAND died of heart disease at his residence in Philadelphia, August 18th. He was born in Salem, Mass., Dec. 8th, 1802; entered Dartmouth College in 1823, and was graduated in 1827. In 1830 he was chosen professor of Latin and Greek at Dickinson College, Carlisle, Pa., where he remained until called to the chair of Latin Language and Literature in the University of this city in 1832. In 1834 he went to Philadelphia to establish a female seminary, which he conducted with great success for many years, devoting his leisure to the preparation of the text-books of ancient and modern literature, for which he is so favorably known. During the administration of President Lincoln, Prof. Cleveland was appointed consul at Cardiff, Wales, which office he held until the present summer.

EDUCATIONAL INTELLIGENCE.

THE NEW YORK STATE ASSOCIATION OF SUPERINTENDENTS AND COMMISSIONERS.—The first subject that received much attention from the Superintendents and Commissioners at the first session of their Annual Convention at Ithaca, July 26th, was the duration of teachers' licenses. Considerable feeling was manifested in regard to a reported decision of the State Superintendent that a Commissioner has no power to grant a license for a period less than one year. The sentiment of the meeting was that licenses for short periods worked very advantageously; and a resolution was adopted asking the State Superintendent to modify his instructions so as to allow Commissioners to license teachers for any time, limited to three years. The power of the State Superintendent to license a teacher rejected by a Commissioner, was also questioned.

The next subject considered was the character of teachers' examinations, whether they should be oral or written or mixed. The main point brought out was that a written examination is not always the best test of a teacher's ability to teach. Dr. Cruikshank instanced a rigid written examination recently held in Brooklyn, where it was found that some of those who answered a low percentage of the questions, actually did more effective work in the school-room than others who passed a much better examination.

The next morning, Superintendent Sheldon, of Oswego, read a report on Uniformity of Examinations, in which he made (among others) the following suggestions:

There should be a State Board of Examiners, composed of the State Superintendent of Public Instruction, and four others appointed by him; and Local Boards of Examiners, each composed of one Commissioner and four licensed teachers.

The State Board should grant diplomas good for life anywhere in the State, outside of the cities; first-grade certificates good for six years, and in all schools below the Union High Schools; and second-grade certificates good for three years, in primary and ungraded schools.

The Local Boards should have power to issue—(a) First-grade certificates for two years; (b) Third-grade certificates for one year; (c) Third-grade certificates for six months, all good throughout the State except the cities.

Candidates for second and third grades from the Local Boards should be examined in arithmetic, English grammar, geography, orthography, reading, penmanship; and for first-grade should be added the elements of algebra, physiology, history, and constitutional government of the United States, the school laws of the State, and the theory and practice of teaching; questions to be prepared by the State Board.

State examinations should be both written and oral, should include in addition to those branches required by the local board, Natural Philosophy, and for a diploma such other branches as the State Board may add.

Diplomas of State Normal Schools to carry the same authority as Diplomas from State Board. No teacher to draw any pay who does not hold one of these certificates. These different grades should thus indicate the amount of experience, the percentage of questions answered, moral worth, and general fitness.

This report was very warmly discussed. Superintendent Bulkley objected to the proposed State Board. Such a board he thought would be a political board, subject to "one-man power." Mr. Barr, of Rochester, thought it would be not only a one-man power, but a board of one way of thinking. Superintendent Sheldon favored the appointment of the Board by the State Teachers' Association; but it seemed impracticable. (Stupendous folly, rather!) Commissioner Pooler, of Oneida county, thought that a live Commissioner would know far better the needs of his district, than the proposed local board. Some districts are unable to employ well-qualified teachers. They had better do something than nothing. Commissioner Allen, of Wayne county, opposed the whole plan. Judgment of a teacher's ability and fitness must be based on visitation as well as on literary qualification. Dr. Cruikshank thought that if Legislative action was to be sought, they should go further and make a State Board of Education to have charge of the entire school-interest. The school-system, he claimed, does not need patching, but a radical change. Superintendent Bulkley said that there was no use of patching up a rickety old house; our State educational system is rotten. Mr. Barr, of Rochester, did not believe in any such board; the school-system needs a power that could act promptly and straight to the mark—a one-man power like that vested in the Superintendent of Public Instruction. Superintendent McMillan, of Utica, thought our present system really Democratic, our plan and our schools and better than those of Massachusetts, with its State Board. If we can do as well in the future, we had better continue patching. Mr. DeGraff, of Rochester, warmly defended our present system and our Commissioners. Teachers from this State are being called to every part of the Union.

The subject was finally referred to a joint committee from the Association of Superintendents and Commissioners and the State Teachers' Association, to report next year.

Dr. Cruikshank made a verbal report on the extent to which the natural sciences should be taught in our common schools. He dissented from the notion that our teaching should be limited by the purely practical. In nature there is an adaptation of means to ends; so should it be in the field of mind. The great evil is not so much in what is taught as in the method of teaching. Our methods should be more inductive, but not carried to extremes even in this direction; the analytic should be brought in as the child advances. Natural sciences should be pursued to just that extent which would keep the balance in the course the child is to pursue. We should not puzzle ourselves too much with moods and tenses, and leave out the great world of Natural Science.

Mr. Barr followed with a report on amendments to the School law. The principal points suggested were: an increase of salary to the State Superintendent, the Deputy Superintendent, and the Commissioners; the discontinuing of the appropriation for district libraries; the abolition of the Board of Regents. It was also recommended that the State Superintendent should be allowed to grant State certificates only on recommendation of the Commissioner under whom the applicant has taught; and that the management of Teachers' Institutes be placed more fully in charge of the State Superintendent.

The only address of importance the second day was Dr. French's on Teachers' Institutes. Indeed this was thought by many to be the most

important address made before the Convention. Dr. French is unexcelled as a manager of Institutes, and his wide and varied experience in the work made his remarks peculiarly instructive and valuable.

He recommended a wider distribution of the Institutes through the year, in order that competent conductors might be obtained; there is no objection to holding an Institute in term-time, as the law provides that the teachers' time and pay shall continue during attendance at the Institute. Within the past few years the experiment of holding Institutes in mid-winter has been tried in several places, in every instance with decided success.

After Dr. French had concluded his remarks, the Commissioners subjected State Superintendent Weaver to a severe examination, the animus of which was not altogether commendable. Mr. Weaver sustained himself admirably, showing himself to be thoroughly competent to discharge the legal and other duties of his office. So utterly defeated, in fact, were the Superintendents and Commissioners, that they carefully suppressed in the Secretary's report of the meeting all mention of their pursuit of information. The officers elected for the ensuing year were: *President*, J. B. Wells, of Madison county; *Vice-President*, E. M. Allen, of Wayne county; *Recording Secretary*, N. W. Edson, of Broome county; *Corresponding Secretary*, Commissioner Whitman, of Cattaraugus county; *Treasurer*, A. McMillan, City Superintendent of Utica.

THE SIXTH ANNUAL CONVOCATION OF THE UNIVERSITY OF THE STATE OF NEW YORK, at Albany, the 3d, 4th, and 5th of August, was one of the most important educational gatherings of the season. We condense from the full report in the *Times*, the following summary of the more important proceedings. The first paper was presented by President Alden, of the Albany Normal School, subject—"Academies and Preparatory Schools."

The paper indicated a high appreciation of the importance of academic instruction; and asserted the desirableness of such endowments for these institutions as should remove from the teacher all inducements to abandon his position for any other. The discussion which followed showed a warm sympathy with Dr. Alden's views, though his suggestions were at some points deemed unnecessary. A more apt criticism, perhaps, would have been that, since academies must exist in every part of the State, the general endowment of them on this enlarged scale does not seem practicable.

A paper by Professor North, of Hamilton College, on the proper age for admission to college, secured very close attention. It was written in a finished and scholarly style, and advocated the elevation of the minimum age for admission. It drew forth much discussion, which was in harmony generally with the Professor's suggestion that the age of admission should not be less than sixteen, or possibly fifteen, instead of fourteen as heretofore.

On the morning of Wednesday the exercises commenced with a paper by Professor Esch on the value of the German language and literature. The address was overflowing with national appreciation, which, though not always within the bounds of good taste, was very cordially received.

A report was next made by Professor Davies upon the French metric system. The Professor thought that the difficulty of translating all the terms of familiar measurement into the new terms of the French system

must be very great. Formerly he had been in favor of a legislative adoption of that system, but reflection had convinced him that the difficulties were formidable. The adoption of a common unit of coinage is by no means so difficult. A slight alteration of our dollar would bring it exactly to the standard of the French five-franc piece; and a similar change of the English sovereign would harmonize that with the others; so that a harmonious adjustment of the coins of the great commercial nations seems wholly practicable and very desirable.

A paper was next read by Professor Upson, of Hamilton College, upon "The Military Roll of Honor," showing how largely our colleges and academies had contributed to the army and navy of our country, the men whose toils and whose blood had overcome the recent rebellion, and re-established our country's unity and glory. The roll, he observed, was far from complete, but it was already quite large, and showed a most honorable fidelity to the country in its time of great need, on the part of these institutions.

A paper was presented by Principal Steele, of the Elmira High School, on School Discipline, which attracted much attention. He maintained that order is not to be sought for the sake of order; and that the undue fixing of attention upon a system of arbitrary rules, which must never be violated, involved more mental effort than was sometimes bestowed upon study itself.

At the opening of the afternoon session of Wednesday, the Board of Regents indulged itself in the unwonted pleasure of conferring degrees. That of Doctor of Philosophy (Ph. D.) was conferred upon Principals Clark, of Canandaigua Academy, and McVickar, of Potsdam Normal School; and that of Doctor of Literature (L. H. D.) upon Professors North, of Hamilton College, and Martin, of the New York University.

The evening of Wednesday was principally devoted to a social gathering of the Convocation at the house of the Chancellor of the Regents, J. V. L. Pruyn, of Albany, whose generous hospitality through successive years was warmly acknowledged by a unanimous vote of thanks from the Convention.

The principal exercises of the third and last day were the reading of a paper on "The Study of the English Language," by Oliver Morehouse, Principal of Albion Academy, and an address by Prof. Goldwin Smith, on "The Influence of Permanent Endowments on University Education in England." The Professor remarked that he had been a member of several Commissions in England, to investigate the effect of these permanent endowments, of which England is full; and that his attention had therefore been very strongly called to the very great tendency which they all show to perversion and abuse. Founders are unable to foresee the changes which are inevitable, and which must often render their benevolent intentions wholly useless and often pernicious. When he entered Magdalen College, that institution, endowed with a yearly revenue of \$30,000 in gold, was educating only twelve persons. Merton College, and three or four others, were in much the same state. Vast revenues were misappropriated or absorbed by the hands through which they passed. Charitable endowments fared no better. Even where, as in the great foundation of Christ's Hospital, many hundreds of children are educated on an endowment of this kind, a most injurious effect is found to occur in the destruction of all parental effort and responsibility for the bringing up of the children.

"He will get all that he needs," the parents say, "at Christ's Hospital;" and they give themselves no concern for the education of their offspring.

The appointment of an Executive committee for the next year's meeting, an address of felicitation by President Read, of the University of Missouri, and a few judicious remarks summing up the work of the three days' sessions by the venerable Vice-Chancellor of the Board of Regents, Gulian C. Verplanck, appropriately closed the exercises of the Convocation. The members separated with a quickened and enlightened appreciation of their great work, and with a promise of a still more interesting session a year hence. The Convocation is already a power, and will, doubtless, become still more fruitful in coming years.

CURRENT PUBLICATIONS.

"THE true teacher does not seek to teach by simply putting books into the child's hand, and bidding it to learn; he addresses himself to those faculties and powers of the child's mind which bring it in [to] relation with the world in which it lives. Sight, hearing, touch, smell, taste, and thence observation, judgment, perception, reason, memory, hope, imagination, and the love of the beautiful are appealed to, developed, and strengthened by natural exercise, even as the organs and limbs of the body are developed and strengthened by gymnastic and other appropriate exercises." This we may call the basis of Mr. Sands' "Philosophy of Teaching," which he develops in his essay on "The Teacher, The Pupil, and The School."¹ As will be seen from our quotation, he puts little faith in book teaching as it is commonly administered to the young; and would have teachers "follow nature;" or, in other words, pursue the course of education which the child naturally follows from the period of birth until the usual school course is begun. He believes in children getting knowledge at first hand by the exercise of their senses, rather than second-hand through books; and looks to the ultimate usefulness of the knowledge acquired rather than for any supposititious culture to be got in acquiring it. Though somewhat bigoted and fanciful in some things—for example, in his opposition to Little Red Riding Hood, and "other equally foolish or more injurious" tales—and evidently a student of education from an outside or theoretical point of view, Mr. Sands gives expression to much good sense and sound criticism of the inverted methods of teaching prevalent in the schools.

HAVING little sympathy with the mania for map-making so prevalent now-a-days, we are inclined to regard with favor the "Hand-Book of Map-Drawing," designed to accompany Mitchell's New Series of Geogra-

¹ The Philosophy of Teaching.—The Teacher, The Pupil, and The School. By Nathaniel Sands. New York: Harper & Brothers. 8vo, pp. 60.

² A Hand-Book of Map-Drawing. By Peter Keam and John Mickleborough. Phila.: E. H. Butler & Co.

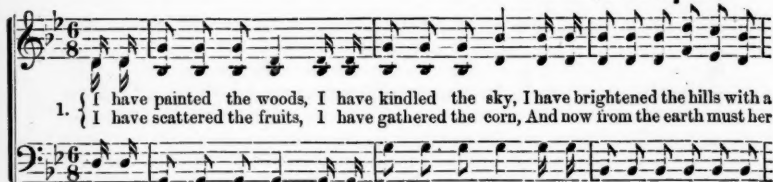
phies—there is so little of it. As a reaction against the old way of studying maps, the new way is good, so long as it is reasonably pursued and kept within reasonable bounds. This, we are sorry to see, is not always the case. Well-drawn maps set off school blackboards so nicely, and command so much attention and admiration from the uninitiated, that teachers are tempted to indulge their pride in this respect, at the cost of much time that might be more profitably occupied. Besides, we have known to exist such gross ignorance of the essentials of this part of geography—the relative size, position, and importance of countries, as compared with each other and with the world as a whole—with great skill in map-drawing after the popular fashion, that we have grave doubts of the efficiency of the exercise as commonly conducted, for securing the object sought. We used to think it a bore to have to commit to memory the latitude and longitude of important cities and other prominent points (all of which were forgotten long ago); but that exercise, it strikes us, was sensible compared with the modern one of learning the multitude of arbitrary lines and measures which this or that book-maker chooses to call his “system.” The latitudes and longitudes might be remembered; and if remembered, would have some little value. The lines and measures are sure to be forgotten, and would be worth nothing if retained, after the maps had once been drawn. The basic idea of studying the contour of geographical divisions by the use of geometrical figures is a good one. It is unquestionably an advantage to the student to have countries roughly blocked out by such means; but that advantage is lost when the pupil is required to learn for every petty state a set of construction lines and measurements which begin and end anywhere, and serve only to afford guessing points from which the pupil is to determine *about* where the actual outline is to be drawn; while the number of their divisions and unmeaning relations is such that no one could hope to remember them all. The little book in hand is one of the least objectionable, simply because it contains so little. It may well be questioned whether that little is of any value: but the same question may be raised of such books generally; and since teachers *must* teach map-drawing—fashion is as inexorable in the school-room as elsewhere—it is an advantage to have the objectionable duty made as light as possible. To offset this merit, we have to complain of this book, 1st, that the construction figures in no way suggest the outlines of the countries to be drawn, since all save two (Great Britain and Italy) are rectangular; and 2d, that no regard is paid to the relative size of the countries in laying off the figures. For example, the basic figure for Asia is “a rectangle in the proportion of 4 to 3;” that for Europe is also a rectangle 4 by 3; but the one in the book is about twice as large as that given for Asia. The figure for New York, Pennsylvania, and New Jersey, is a square; the figure for Africa is also a square, but not quite so large. Since nothing is said of relative size, and no scale is given, the pupil is left to the natural inference that the Middle States are as large as Africa; or what is just as bad, he will perceive the correspondence in size and give no further thought to the matter. The sides of the general figures for the different maps are variously subdivided, and certain interior lines are drawn; but it is hard to tell in most cases why any other lines would not answer as well.

Specimen Page from "Diadem of School Songs."

THE SONG OF AUTUMN.

121

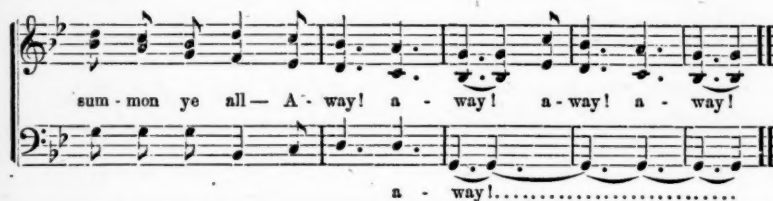
Music composed for this work.



1. { I have painted the woods, I have kindled the sky, I have brightened the hills with a
 { I have scattered the fruits, I have gathered the corn, And now from the earth must her



glance of mine eye; }
 verdure be torn. } Ye lingering flowers, ye leaves of the spray, I



sum-mon ye all—A-way! a-way! a-way! a-way!
 a-way!.....

2 No more from the depth of the grove may be heard,
 The joy-burdened song of the fluttering bird;
 I have passed o'er the branches that sheltered him there,
 And their quivering drapery is shaken to air.
 Ye lingering flowers, &c.

3 I call on the winds that repose in the north,
 To send their wild voices in unison forth;
 Let the harp of the tempest be dolefully strung—
 There's a wail to be made, there's a dirge to be sung:
 For the lingering flowers, the leaves of the spray—
 They are doomed—they are dying—away!—away!

About this book, the *Massachusetts Teacher* for August, 1869, speaks as follows:

THE DIADEM OF SCHOOL SONGS: containing Songs and Music for all grades of Schools, a New System of Instruction in the Elements of Music, and a Manual of Directions for the Use of Teachers. By WM. TILLINGHAST. New York: J. W. Schermerhorn & Co., 14 Bond Street.

A very pretty book indeed, and we are inclined to think a very good one. The author has displayed excellent taste in his selection of tunes and poetry, and his plan of instructing in sight-singing is a valuable feature of the work.